CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2000
DateRun:	01/04/2000
Experimenters:	Jason Marshall
ClientType:	Vessel Cleaning Company
ProjectNumber:	Project #2
Substrates:	Stainless Steel
PartType:	Coupon
Contaminants:	Adhesive, Resins/Rosins
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Gravimetric
Purpose:	To identify a cleaner that will remove the contaminant when it is in the tanker trucks.
Experimental Procedure:	Five cleaning solutions were selected from the lab's All Tests database based on past effective cleaning of similar contaminants. Ten percent solutions were made in 600 ml beakers using DI water. The solutions were heated to 130 F on a hot plate. Fifteen preweighed coupons were contaminated and weighed again. Three coupons were placed in each cleaner for five minutes with stir-bar agitation. Coupons were rinsed in a tap water bath for 30 seconds at 120 F and dried using a Master Appliance Corp, Hot-air gun model HG-301A. Final weights were recorded, and cleaning efficiencies calculated. SUBSTRATE MATERIAL: Stainless Steel coupons CONTAMINANTS Ashland Specialty Chemical Co, Acrylic Resin solution, Aroset 1872 Z 40 (CAS#s: 108-88-3, 141-78-6, 142-82-5, 67-63-0) CONTAMINATING PROCESS USED: Coupons were coated with contaminant with a handheld swab. Coupons were then allowed to dry for one hour.
Results:	None of the selected cleaners were very effective in removing the resin from the coupons. Shopmaster and All Purpose were the best of the five, removing just under 30% of the contaminant. The coupons cleaned with these two products were visible different than the other coupons. The other coupons looked shiny where the contaminant was whereas the Shopmaster and All Purpose appeared dull. Table 2 lists the results for each cleaner.

Table 2. Cleaning Efficiency

Cleaner	Buckeye	SafeScience	Oakite	Envirosolutions	MacDermid
Coupon 1	26.18	23.83	-15.15	-11.48	2.95
Coupon 2	29.83	28.82	44.46	3.88	13.48
Coupon 3	30.75	21.59	4.70	-2.00	15.03
Ave	**28.92**	**24.75**	**11.34**	**-3.20**	**10.49**
Std Dev	**2.42**	**3.70**	**30.36**	**7.75**	**6.58**

Summary:

Substrates:	Stainless Steel
Contaminants:	Adhesive, Resins/Rosins

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Buckeye International	Shopmaster	10	28.92	☐	
Safe Science Inc	Safe Science All Purpose (Industrial)	10	24.75	☐	
Oakite Products	Inproclean 4000 T	10	11.34	☐	
Bio Chem Systems	Bio T Max	10	-3.20	☐	
MacDermid Industrial Products	ND 17	10	10.49	☐	

Conclusion: Since none of the products selected removed the resin, additional testing will be performed using different cleaning solutions.